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Applicant: William Morrison

Examiner: Andrew J. Rost

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Docket No.: H0004497-1161.1155101

For: VALVE FOR REDUCING WATER HAMMER

PRE-APPEAL BRIEF REQUEST FOR REVIEW

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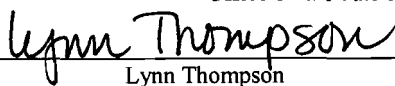
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Lynn Thompson

December 7, 2006
Date

Applicants submit that the Examiner's rejections contain at least the following clear errors and/or omissions of one or more essential elements needed for a prima facie rejection.

Claims 1-3 and 8 are rejected as being anticipated by Persons. The Examiner acknowledges that Persons does not teach that the biasing mechanism is structured to close the valve stem within a time period that causes water hammer in a fluid system, but asserts that Persons' system has a valve connected to a valve stem, and that when the valve stem closes against the valve seat, the fluid in the fluid system will create a water hammer effect while the valve is closing due to the barrier in the flow path. In the Advisory Action mailed October 23, 2006, the Examiner also asserts that the presence of water hammer and the removal of water hammer in the system are characteristics of the fluid flow including the flow rate of the fluid, and that water hammer would not occur in a water system with a small fluid flow.

Independent claim 1 positively recites an actuator including a biasing mechanism that is structured to close a valve stem within a time period that would cause water hammer in a fluid system, and a brake that increases the time period that the biasing mechanism closes the valve stem by an amount that eliminates water hammer in the fluid system. Applicant submits that the claimed actuator has a structure that, without the brake, would cause water hammer, but with the brake, eliminates water hammer in a fluid system. That is, the biasing mechanism and the brake of claim 1 must be structured relative to one another to cooperate and provide the recited function. One of ordinary skill in the art would understand that, while it is true that water hammer would not occur in a system having a small fluid flow, the claims specifically state the biasing mechanism as being structured to cause water hammer, thus the fluid system referred to in the claim would have fluid

flowing at a rate such that water hammer is caused by the biasing mechanism, and is then eliminated by the recited brake.

Persons does not appear to teach anything with regard to water hammer. Instead, Persons appears to be directed to the problem of preventing rebound of a valve that is closing, and the resulting undesirable fluctuations caused in the flow of fluid. For example, Persons states:

If some provision is not made for retarding the movement of the valve when it is closed by the spring motor, the accumulated momentum of the parts will be such that the shock of seating, even with the interposition of the spring 9, will cause the valve to rebound with the result that undesirable fluctuations will be caused in the flow of fluid through the valve.

(Emphasis added; see column 2, lines 42-49). Thus, Persons appears to teach a system in which a valve will rebound against the seat if the movement of the valve is not retarded. There is nothing in Persons that teaches that fluid flow causes or is anyway involved in this rebounding movement. Instead, it appears the accumulated momentum of the valve parts themselves cause the valve to rebound from the valve seat. Applicant submits that one of ordinary skill in the art, upon reading Persons, would not interpret Persons as teaching anything with respect to water hammer.

Persons thus does not appear to teach each and every element of claims 1-3 and 8, as is required for an anticipation rejection. MPEP 2131 states that, in order to anticipate a claim, "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)." Applicant submits that, as discussed above, Persons does not appear to disclose the identical invention in as complete detail as is contained in the claims.

If the Examiner is asserting the claimed structure is an inherent property of the Persons valve, Applicant submits that there is no basis for such an interpretation. MPEP 2112 IV. states:

"To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999)...

"In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)

(Emphasis added). The claimed actuator assembly is not necessarily present in Persons. It appears the Examiner is asserting that the structure of Persons might have similar characteristics of the claimed structure, which is not a proper basis for rejection. Applicant submits that the valve of Persons is specifically designed and structured to prevent a valve from rebounding from its seat when closing. However, such a structure would not necessarily be the same as the structure of the claimed biasing mechanism and brake. Further, the Examiner has not provided a basis in fact and/or technical reasoning to reasonably support the determination that the characteristics of the claimed actuator necessarily flow from the teachings of Persons.

Claims 1-3 and 8 are rejected as being anticipated by Min. The Examiner acknowledges that Min does not teach that the biasing mechanism is structured to close the valve stem within a time period that causes water hammer in a fluid system, but asserts that Min's system has a valve connected to a valve stem, and that when the valve stem closes the valve, the fluid in the fluid system will create a water hammer effect while the valve is closing due to the barrier in the flow path.

Applicant submits that the claimed actuator has a structure that, without the brake, causes water hammer, and with the claimed brake, eliminates water hammer in a fluid system. In contrast, Min appears to be directed at reducing the noise generated from a connection part of a deceleration unit connected to a motor axis in a motor brake system, and to increasing the life of the parts of such a system. See paragraphs 7-10. Applicant submits that one of ordinary skill in the art, upon reading Min, would not interpret Min as teaching anything with respect to water hammer. Min thus does not appear to teach each and every element of claims 1-3 and 8, as is required for an anticipation rejection (see MPEP 2131 quoted above).

If the Examiner is asserting the claimed structure is an inherent property of the Min valve, Applicant submits that the Examiner has not provided a basis in fact and/or technical reasoning to reasonably support such an assertion. See discussion of MPEP 2112 IV above. The valve of Min does not appear to have a structure that would necessarily be the same as the structure of the claimed biasing mechanism and brake. The brake of Min appears to be specifically designed and structured to allow for reverse rotation of the motor with reduced noise and wear, and such a structure would not necessarily be the same as the structure claimed.

Applicants submit that the Examiner has not satisfied the requirements for an anticipation rejection, thus maintaining the rejections over Persons and Min is clear error.

Claims 9-25, 27-30, and 33 are rejected as being obvious over Min. The Examiner asserts that Min teaches the rotational velocity of the motor shaft is limited by the brake and the brake can be altered to adjust the rotation speed of the motor, and that making such an adjustment would have been obvious to promote a longer service life of the actuator components. MPEP 2143.01 III states that the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. Applicant submits that there is no motivation or suggestion whatsoever in Min to modify the brake to have a configuration in which it limits the rotational velocity of the output shaft of the motor to less than 1000 RPMs, as is recited in claims 9 and 27. Additionally, there is no indication or suggestion that making such a modification would result in a longer service life of the actuator components, or reduce water hammer. The only motivation for modifying the system of Min to achieve the specific rotational velocity of the motor recited in claims 9 and 27 appears to be found in Applicant's own specification, which is clearly improper.

Independent claims 21 and 29 recite, in part, a valve assembly and method, respectively, comprising a damping mechanism configured to limit a speed of the valve when the actuator assembly is moving the valve from the open position to the closed position such that the valve moves from the open position to the closed position in 4 seconds or more. The Examiner acknowledges that Min fails to disclose such elements but asserts that it would have been obvious to adjust the rotation speed of the motor to a desired rpm and a desired valve closing time because Min teach that "the rotation speed of a motor is adjusted." There is no indication or suggestion whatsoever in Min that adjusting the brake in the system of Min to achieve the time period recited in claims 21, 29 and 33 or the rotational velocity of the motor as recited in claims 9 and 27 would be a desirable change or that such modifications would result in a longer service life of the valve components, or reduce water hammer. The Examiner asserts that Min teaches "the rotation speed of a motor is adjusted" and "a deformation degree of the brake 51 can be adjusted depending on the rotation speed of the rotor 53", and therefore it would have been obvious to adjust the rotation speed of the motor to a desired rpm and a desired valve closing time.

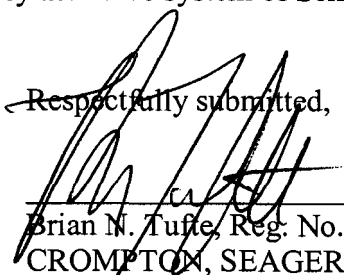
As noted above, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. There is no motivation whatsoever for one of ordinary skill in the art to adjust the rotational velocity

to less than 1000 rpm, as is specifically recited in independent claims 9 and 27, or to adjust the assembly to close a valve from the open position to the closed position in 4 seconds or more, as is specifically recited in independent claims 21 and 29. Min does not appear to teach anything with respect to water hammer or to adjusting the motor to achieve any particular rotational velocity or valve closing speed. The only motivation for modifying Min appears to be found in Applicant's specification, which is clearly an improper basis for an obviousness rejection.

Claims 31 and 32 are rejected as being unpatentable over Schreiner, Jr. et al. in view of Min. The Examiner acknowledges that Schreiner, Jr. et al. fails to disclose using a motor having a brake to replace the motor in the housing, but asserts that it would have been obvious to use the motor with a brake as taught by Min in the removable and interchangeable valve actuator system of Schreiner, Jr. et al. in order to prevent the valve components from being damaged. Applicant submits that there is no motivation for one of ordinary skill in the art to replace the motor without a brake as taught by Schreiner, Jr. et al. with a motor having a brake. It would appear the valve system of Schreiner, Jr. et al. utilizes a spring, and thus operates without the need for a brake (see column 14, lines 41-52). More specifically, Schreiner, Jr. et al. state "[s]pring 274 engages the facing surface of rib 142 as drive gear 252 approaches its position of FIG. 20 to gradually slow movement of the drive gear 252 as valve member 80 approaches its fully open position." Thus, it is unclear how adding a motor with a brake would prevent the valve components from being damaged, as asserted by the Examiner. Independent claims 31 and 32 positively recite the steps of removing the actuator assembly, or at least a portion of the actuator assembly housing, respectively, from the system that has water hammer. Neither Schreiner, Jr. et al. nor Min appear to teach anything regarding water hammer. Thus, there is no motivation for one of ordinary skill in the art to modify the valve system of Schreiner, Jr. et al. to include elements of Min or to otherwise modify the valve system of Schreiner, Jr. et al. to achieve the elements as claimed.

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Respectfully submitted,



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